

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To: AN, Kook Chan Hannuri Bldg., 219, Naeja-dong, Chongno-gu, Seoul, 110-053, Republic of Korea

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Applicant's or agent's file reference skop-muller	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/KR2004/000896	International filing date (day/month/year) 20 APRIL 2004 (20.04.2004)
Applicant SHIN SUNG IND. CO., LTD. et al	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

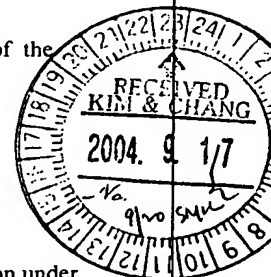
Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.



2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:
- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders

Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months**(or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the ISA/KR Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer COMMISSIONER Telephone No. 82-42-481-5281
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PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference skop-muller	FOR FURTHER ACTION <div style="float: right; font-size: small;">see Form PCT/ISA/220 as well as, where applicable, item 5 below.</div>	
International application No. PCT/KR2004/000896	International filing date (<i>day/month/year</i>) 20 APRIL 2004 (20.04.2004)	(Earliest) Priority Date (<i>day/month/year</i>) 21 APRIL 2003 (21.04.2003)
Applicant SHIN SUNG IND. CO., LTD. et al		

This International search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 3 sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.

2. ☐ Certain claims were found unsearchable (See Box No. II)

3. ☐ Unity of invention is lacking (See Box No. III)

4. With regard to the title,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the abstract,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the drawings,

a. the figure of the drawings to be published with the abstract is Figure No. 1

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

b. ☐ none of the figure is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/KR2004/000896

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 B02C 19/06, B02C 18/44, B29B 17/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 B02C, B29B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean Patents and applications for inventions since 1975,

Korean Utility models and applications for Utility models since 1975,

Japanese Utility models and applications for Utility models since 1975

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKIPASS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JP 61-54639 A (MITA IND CO LTD) 03 JUNE 1994 See the whole document	1
A	JP 9-094473 A (KARASAWA YUKIHIKO) 08 APRIL 1997 See the whole document	1-9
A	JP 7-088347 A (SEKISUI FINECHEM CO LTD) 04 APRIL 1995 See abstract and claim 1	1-9
A	EP 850690 A1 (CANON KABUSHIKI KAISHA) 01 JULY 1998 See the whole document	1-9

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

07 SEPTEMBER 2004 (07.09.2004)

Date of mailing of the international search report

08 SEPTEMBER 2004 (08.09.2004)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

KIM, Yong Jung

Telephone No. 82-42-481-5557



INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/KR2004/000896

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
JP 61-54639 A	03.06.1994.	NONE	
JP 9-094473 A	08.04.1997.	DE 19640027 A1	17.04.1997.
JP 7-088347 A	04.04.1995.	NONE	
EP 850690 A1	01.07.1998.	JP 11-070341 A2	16.03.1999.

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

AN, Kook Chan

Hannuri Bldg., 219, Naeja-dong, Chongno-gu, Seoul, 110-053,
Republic of Korea

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing
(day/month/year) 08 SEPTEMBER 2004 (08.09.2004)

Applicant's or agent's file reference
skop-muller

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/KR2004/000896

International filing date (day/month/year)

20 APRIL 2004 (20.04.2004)

Priority date(day/month/year)

21 APRIL 2003 (21.04.2003)

International Patent Classification (IPC) or both national classification and IPC

IPC7 B02C 19/06, B02C 18/44, B29B 17/00

Applicant

SHIN SUNG IND. CO., LTD. et al

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1 bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/KR



Korean Intellectual Property Office
920 Dunsan-dong, Seo-gu, Daejeon 302-701,
Republic of Korea

Facsimile No. 82-42-472-7140

Authorized officer

KIM, Yong Jung

Telephone No. 82-42-481-5557



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2004/000896

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/KR2004/000896

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-9	YES
	Claims	None	NO
Inventive step (IS)	Claims	2-9	YES
	Claims	1	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims	None	NO

2. Citations and explanations :

1. The present invention relates to a muller, and more particularly to a muller for mixing a material to be processed in highly pressurized air and at a very low temperature, transferring the material mixed in the air, injecting the material using a nozzle at a very high pressure, and colliding the material against a mulling head, thereby finely mulling the material.

2. Reference is made to the following document:

D1 : JP 6154639 A1

D1 relates to a jet mill for improving the pulverizing efficiency of a raw material and the classifying performance after pulverizing the raw material, comprising a pulverizing chamber for pulverizing a raw material; an air feeding port for blowing jet air in the pulverizing chamber; a collision plate provided in the pulverizing chamber against which the raw material fed from a raw material hopper collides by jet air; an exhaust port for discharging the blown-in jet air and the fed raw material; and a chamber for housing dry ice.

3. The present invention is the same as D1 in its purpose of providing a mulling apparatus which crushes a raw material by colliding it against a mulling head by highly pressurized air in order to pulverize the raw material into fine particles.

Claim 1 and D1 are the same in the structure comprising a nozzle unit(an air feeding port in D1) discharging highly pressurized air, a mulling head(a collision plate in D1) which a raw material contained in highly pressurized air collides against, and an input device(a raw material hopper) for providing raw material. Though a difference presents between the shape of a mulling unit having a downwardly tapered open outlet of the present invention and the shape of an exhaust port of D1, this modification of the shape can be easily made by a person skilled in the art if necessary, without any particular difficulty. Thus, claim 1 of the present invention are novel, but do not involve an inventive step under PCT Article 33(2)-(3).

(Continued on Supplemental Sheet)

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/KR2004/000896

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of :

Box No. V

4. Claims 2-9 disclose the technical feature of providing refrigerant through a refrigerant inlet in order to prevent the abrasion of an apparatus with an influence of frictional heat and to maximize the crushing efficiency by establishing a cold mulling process; and also disclose a pipe line which is installed connecting the upper part of a hopper with a raw material inlet in order to stabilize the inner pressure of the hopper and a pressure of a transfer pipe line in the same level, which are not disclosed in D1. Thus, claims 2-9 are novel and involve an inventive step under PCT Article 33(2)-(3).

5. Claims 1-9 are industrially applicable under PCT Article 33(4).